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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/939,638	08/28/2001	Zhe-Hong Chen	110468	4553

25944 7590 10/20/2005

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EXAMINER	
YE, LIN	

ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 10/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/939,638	CHEN ET AL.	
	Examiner	Art Unit	
	Lin Ye	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 August 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-15 and 17-30* is/are pending in the application.

4a) Of the above claim(s) *3,4,11,12,18,19,26 and 27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,5-10,13-15,17,20-25 and 28-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 2-15 and 17-30 filed on 8/26/05 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 2, 5-10, 13-15, 17, 20-25 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton, Jr. et al. U.S. Patent 6,697,107 in view of Kohashi et al. U.S. Patent 6,642,960.

Referring to claim 2, the Hamilton reference discloses in Figures 2-8, an image processing apparatus (electronic still camera 1, See col.2, lines 52-63) for smoothing image data that is formed by a plurality of pixels (two-dimensional array of pixels on the image sensor 12) and includes at least three color components, each of the plurality of pixels having a single color component (See Col. 2, lines 14-18 and Col. 1, lines 29-40), comprising: similarity degree calculating means (the blur block 42) for calculating similarity degrees indicating similarity between a target pixel and pixels in the vicinity of the target pixel

among a plurality of pixels that form the image data (the blurred luminance value B33 as a similarity degrees indicating similarity between the center pixel and pixels in the vicinity of the center pixel, see Col. 5, lines 15-24); classifying means (classification block 48) for classifying pixels whose similarity degrees have been calculated by the similarity degree calculating means into one of a plurality of groups having different similarity degree features (See Col. 5, lines 25-65 and Col. 6, lines 1-20); and smoothing means for selecting a pixel to be subjected to smoothing from among a pixel that has been classified into a particular group in the plurality of groups and pixels in the vicinity of the pixel that has been classified into the particular group, and for performing smoothing on color information of at least one color component of the selected pixel by using pieces of color information of at least one color component of the selected pixel and of pixels adjacent to the selected pixel (See Col. 6, lines 21-45). However, the Hamilton reference does not explicitly show classifying pixels into one of nine or more groups instead of five groups.

The Kohashi reference teaches in Figures 8A-C, 9A-K and 16, an image processing apparatus for smoothing (e.g., interpolating the fault pixel by an average level of the interpolating pixels, See Col. 14, lines 10-12) image data that is formed by a plurality of pixels and includes at least three color components, each of the plurality of pixels having a single color component, comprising: classifying means (image configuration detection) for classifying pixels whose similarity degrees (a relative value of pixels of their difference within 12.5% are regarded as the same, see Col. 14, lines 13-38) have been calculated by the similarity degree calculating means into one of nine or more groups having different similarity features (e.g., classified into nine pattern types as shown in Figures 8A-C, see Col.

14, lines 39-45). The Kohashi reference is evidenced that one of ordinary skill in the art at the time to see more advantages for the image processing apparatus classifying pixels into one of nine or more groups so that the image configuration can be accurately detected and the compensation error becomes smaller than only five groups (See Col. 1, lines 5-46). For that reason, it would have been obvious one having ordinary skill in the art at the time of the invention was made to modify the image processing apparatus of Hamilton ('107) by providing the classifying means to classify pixels into one of nine or more groups for smoothing image data as taught by Kohashi ('960).

Referring to claim 5, the Hamilton reference discloses wherein said smoothing means smoothes color information of a color component of a pixel that is adjacent to a plurality of pixels that have been classified into the particular group by the classifying means (See Col. 6, lines 37-45).

Referring to claim 6, the Hamilton reference discloses wherein said smoothing means uses, as said particular group, a group having a feature that similarity degrees calculated in at least two sets of two different directions by the similarity degree calculating means are approximately the same, and the tow different directions are substantially orthogonal to each other (the group is classified as "flat" shown in Figure 7C. the similarity degree of vertical and horizontal directions are approximately the same, See Col. 6, lines 20-23).

Referring to claim 7, the Hamilton reference discloses wherein said smoothing means judges that any two calculated sets of similarity degrees are approximately the same when a difference between the two calculated sets of similarity degrees is smaller than a prescribed threshold value (less than a fixed threshold, such as 24, See Col. 6, lines 20-23).

Referring to claim 8, the Hamilton reference discloses all subject matter as discussed with respected to same comment as with claim 2, and the Hamilton reference discloses interpolating means for interpolating pieces of color information of a color component that is absent from pixels that are arranged at a prescribed pitch among the plurality of pixels that form the image data (See Col. 4, lines 28-32); similarity degree calculating means for calculating similarity degrees in at least two different directions for each pixel to be a subject of interpolation by the interpolating means (See Col. 5, lines 20-25).

Referring to claim 9, the Hamilton reference discloses said smoothing means performs the smoothing parallel with the interpolation by the interpolating means (as shown in figure 2, the digital signal processor 22 performs the interpolation and smoothing together, see col. 4, lines 29-30 and Col. 6, lines 45-65).

Referring to claim 10, the Hamilton reference discloses wherein said interpolating means employs, as subjects of the interpolation, pixels that miss a color component having a highest spatial arrangement density; and said smoothing means smoothes color information of the color component having the highest spatial arrangement density of a pixel adjacent to a pixel that has been classified into the particular group (see col. 4, lines 29-30 and Col. 6, lines 45-65).

Referring to claim 13, the Hamilton reference discloses all subject matter as discussed with respected to same comment as with claim 5.

Referring to claim 14, the Hamilton reference discloses all subject matter as discussed with respected to same comment as with claim 6.

Referring to claim 15, the Hamilton reference discloses all subject matter as discussed with respected to same comment as with claim 7.

Referring to claim 17, the Hamilton reference discloses all subject matter as discussed with respected to same comment as with claim 2, and the Hamilton reference discloses a storage medium in which an image processing program is stored (See Col. 6, lines 66-67).

Referring to claim 20, the Hamilton reference discloses all subject matter as discussed with respected to same comment as with claim 5.

Referring to claim 21, the Hamilton reference discloses all subject matter as discussed with respected to same comment as with claim 6.

Referring to claim 22, the Hamilton reference discloses all subject matter as discussed with respected to same comment as with claim 7.

Referring to claim 23, the Hamilton reference discloses all subject matter as discussed with respected to same comment as with claim 8, and the Hamilton reference discloses a storage medium in which an image processing program is stored (See Col. 6, lines 66-67).

Referring to claim 24, the Hamilton reference discloses all subject matter as discussed with respected to same comment as with claim 9.

Referring to claim 25, the Hamilton reference discloses all subject matter as discussed with respected to same comment as with claim 10.

Referring to claim 28, the Hamilton reference discloses all subject matter as discussed with respected to same comment as with claim 5.

Referring to claim 29, the Hamilton reference discloses all subject matter as discussed with respected to same comment as with claim 6.

Referring to claim 30, the Hamilton reference discloses all subject matter as discussed with respected to same comment as with claim 7.

Conclusion

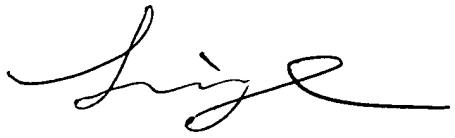
4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lin Ye whose telephone number is (571) 272-7372. The examiner can normally be reached on Mon-Fri 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Lin Ye
Examiner
Art Unit 2615

October 17, 2005